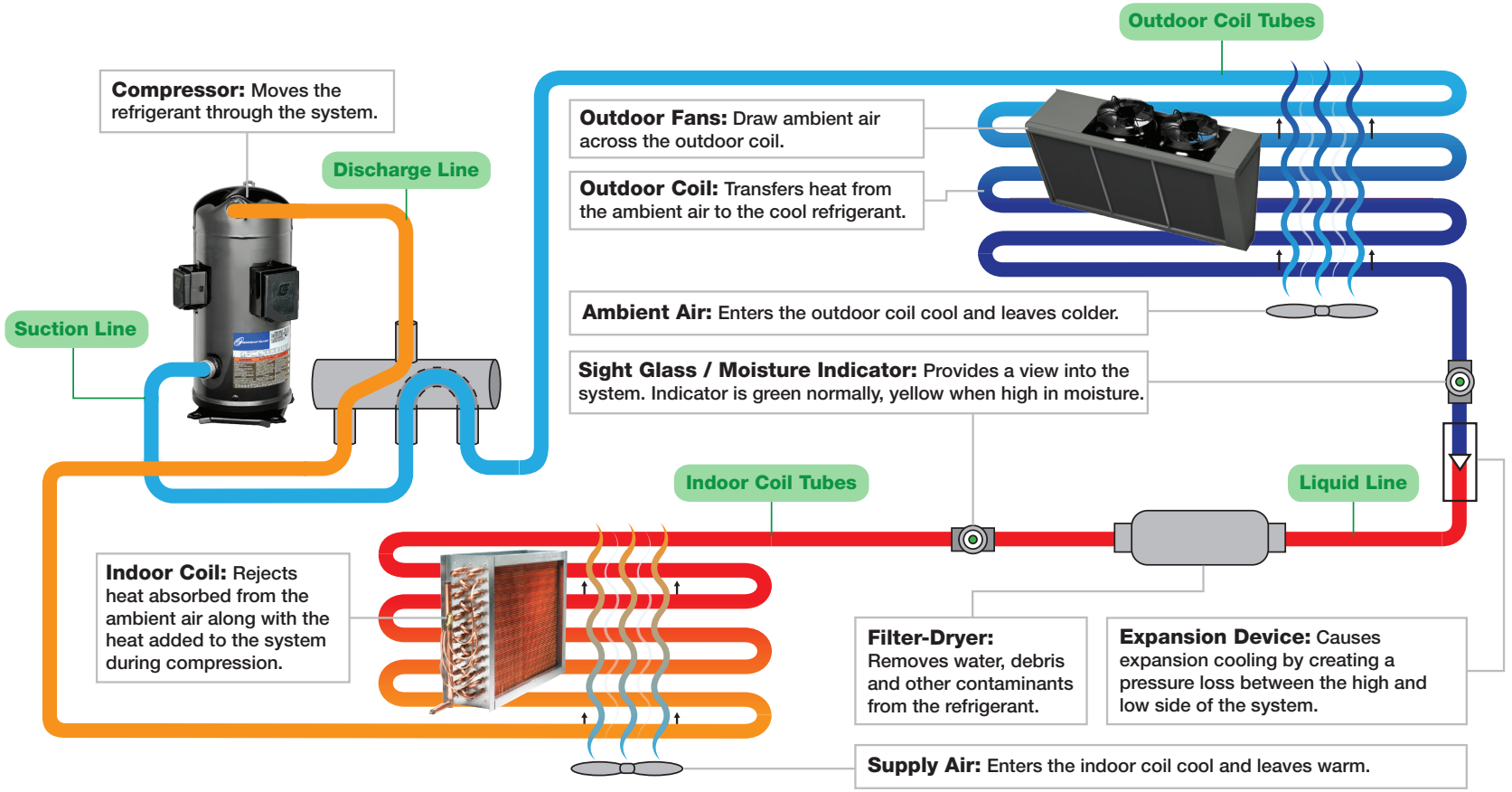
Air-Source Heat Pump Refrigeration System

Heating Mode



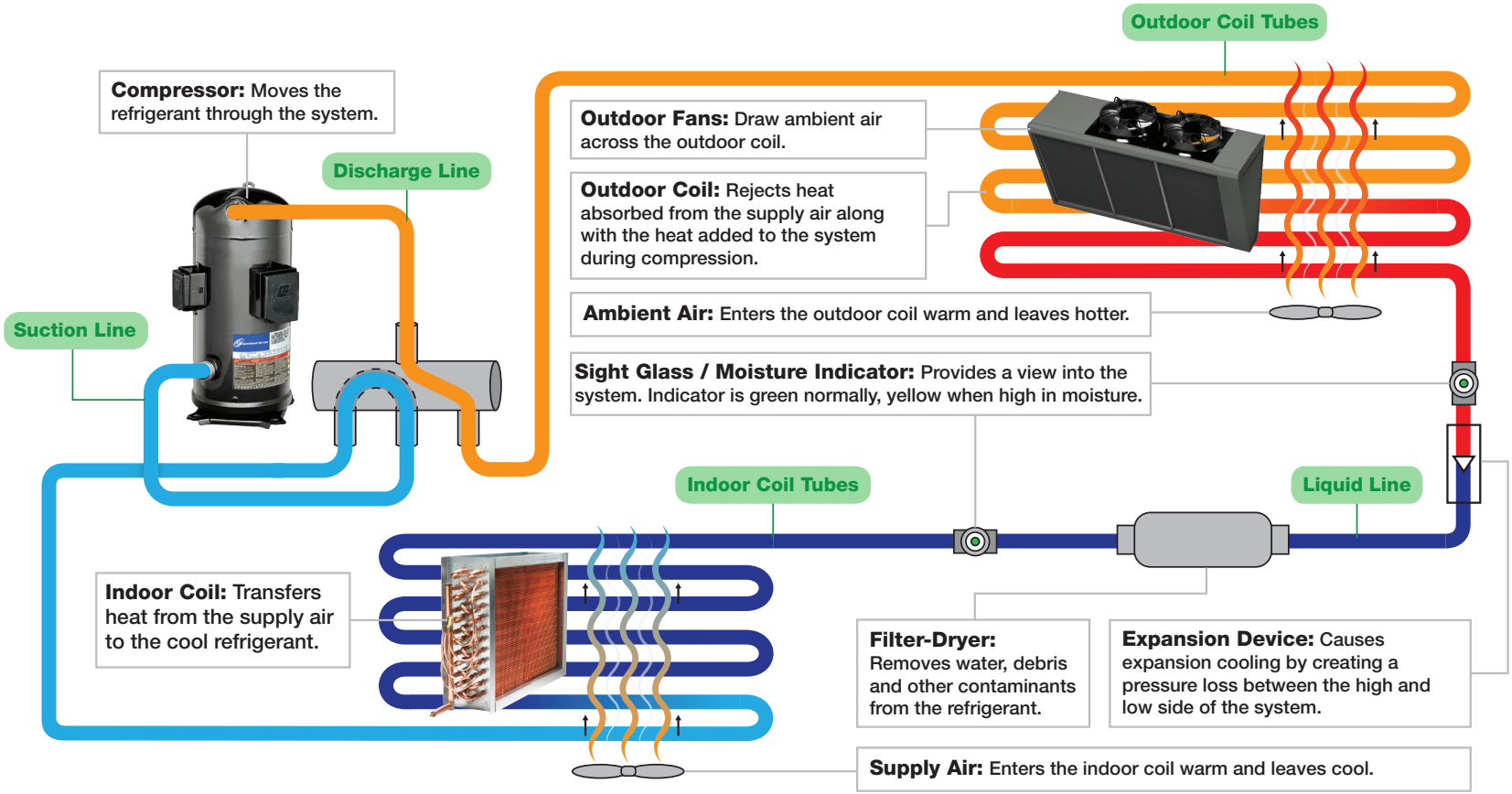
SYSTEM TEMPERATURES AND PRESSURES			
Refrigerant State	T, °F	R-454B, psig	Superheat/Subcool
Low Pressure Saturated	27	82	
Low Pressure Superheated Vapor	37	82	Superheat = T - T_{sat} = 37° - 27° = 10°F
High Pressure Gas	145	300	
High Pressure Saturated	100	300	
High Pressure Liquid	90	300	Subcool = T_{sat} - T = 100° - 90° = 10°F

LOAD CALCULATIONS	
Condenser (Indoor Coil)	Q_{out} (Btu/hr) = 1.08 x SCFM x Δ Temperature
Evaporator (Outdoor Coil)	Q_{in} (Btu/hr) = 4.5 x SCFM x Δ Enthalpy

R2 8-2024

Air-Source Heat Pump Refrigeration System

Cooling Mode



SYSTEM TEMPERATURES AND PRESSURES			
Refrigerant State	T, °F	R-454B, psig	Superheat/Subcool
Low Pressure Saturated	45	118	
Low Pressure Superheated Vapor	55	118	Superheat = T - T_{sat} = 55° - 45° = 10°F
High Pressure Gas	160	370	
High Pressure Saturated	115	370	
High Pressure Liquid	105	370	Subcool = T_{sat} - T = 115° - 105° = 10°F

LOAD CALCULATIONS	
Condenser (Outdoor Coil)	Q_{out} (Btu/hr) = 1.08 x SCFM x Δ Temperature
Evaporator (Indoor Coil)	Q_{out} (Btu/hr) = 4.5 x SCFM x Δ Enthalpy

GREENHECK

P.O. Box 410 • Schofield, WI 54476-0410 • 715.359.6171 • greenheck.com